

WHAT IS CLAIMED IS:

1. A method for inspecting wire breaking of a semiconductor integrated circuit in a non-contact manner,
5 comprising the steps of:

maintaining a semiconductor integrated circuit (1) in a state where a predetermined voltage is being applied thereto;

two-dimensionally scanning and irradiating a two-
10 dimensional circuit of the semiconductor integrated circuit by using an ultrashort light pulse (2);

detecting an electromagnetic wave (3) radiated from a position irradiated with the ultrashort light pulse on the semiconductor integrated circuit; and

15 detecting wire breaking of the irradiated position based on presence and absence or intensity of the electromagnetic wave.

2. The method according to claim 1, wherein the ultrashort light pulse (2) has a wavelength equal to or
20 larger than 300 nanometers and equal to or smaller than 2 microns, time average energy equal to or larger than 0.1 mW and equal to or smaller than 10 W, and a pulse width equal to or larger than 1 femtosecond and equal to or smaller than 10 picoseconds.

25 3. An apparatus that inspects wire breaking of a semiconductor integrated circuit, comprising:

a voltage applying device (12) that maintains a semiconductor integrated circuit in a state where a predetermined voltage is being applied thereto;

a light pulse source (14) that generates an
5 ultrashort light pulse (2);

a scanning device (16) that two-dimensionally scans and irradiates a two-dimensional circuit of the semiconductor integrated circuit by using the ultrashort light pulse (2);

10 an electromagnetic wave detection device (18) that detects an electromagnetic wave (3) radiated from a position irradiated with the ultrashort light pulse on the semiconductor integrated circuit; and

a wire breaking detection device (20) that detects
15 wire breaking of the irradiated position based on presence and absence or intensity of the electromagnetic wave.

4. The apparatus according to claim 3, wherein the light pulse source (14) is a mode lock Ti-sapphire laser or femto-second fiber laser capable of generating the
20 ultrashort light pulse (2) that has a wavelength equal to or larger than 300 nanometers and equal to or smaller than 2 microns, time average energy equal to or larger than 0.1 mW and equal to or smaller than 10 W, and a pulse width equal to or larger than 1 femtosecond and equal to or
25 smaller than 10 picoseconds.